

(12) **United States Patent**
Versteyhe et al.

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(54) **BALL TYPE CVT INCLUDING A DIRECT DRIVE MODE**

(58) **Field of Classification Search**
None

See application file for complete search history.

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(65) **Prior Publication Data**

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(57) **ABSTRACT**

Related U.S. Application Data

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F16H 15/50 (2006.01)

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(52) **U.S. Cl.**

CPC **F16H 15/503** (2013.01); **F16H 37/021** (2013.01); **F16H 15/28** (2013.01); **F16H 2037/023** (2013.01)

Variable transmissions and drivelines using such transmissions having a direct drive mode, a reverse mode, and a continuously variable mode of operation using a continuously variable variator in combination with a gearbox having a one or two speed forward gear, a reverse gear, and a direct drive clutch. The direct drive clutch transfers power from the input shaft directly to the gearbox by running the variator in a unitary (1) speed ratio configuration, or by bypassing the variator altogether by using a set of clutches that disconnect the variator from the input shaft. Additional gears may be provided in the gearbox.

20 Claims, 5 Drawing Sheets

